

Claims

1. Hydraulic control system for controlling a hydraulic
5 consumer actuating a working tool of a mobile
equipment, comprising a control block, through the
regulator of which a pump and a tank may be connected
with a pressure medium delivery connected to the
10 consumer or with a pressure medium-drain, and
oscillation damping means whereby oscillations during
stopping of the working tool may be attenuated by
opening a connecting line between delivery and drain,
characterized in that the oscillation damping means
15 comprise two pilot-controlled shut-off valves
arranged in opposite directions in the connecting
line, whereby the connecting line may be opened when
the pressure in the drain rises, wherein the shut-off
valves may be subjected to the pressure in the
20 delivery and in the drain, respectively, in the
opening direction and also to this pressure and to
the force of a spring in the closing direction, and
wherein in a predetermined position of the regulator
the drain-side shut-off valve may be subjected to the
25 tank pressure or to another low pressure in the
closing direction.
2. The control system in accordance with claim 1,
wherein an attenuation nozzle is arranged in the
30 connecting line between the shut-off valves.
3. The control system in accordance with claim 1 or 2,
wherein the connecting line and the shut-off valves
are integrated into the regulator.

4. The control system in accordance with claim 3,
wherein the regulator has an axial bore wherein the
shut-off valves are inserted.
- 5 5. The control system in accordance with claim 4,
wherein the axial bore is enlarged on both sides into
spring chambers for a spring of the respective shut-
off valve, whereby a valve body is biased against a
valve seat formed by a radial shoulder of the axial
10 bore.
6. The control system in accordance with claim 5,
wherein the valve body is executed with an area
difference, so that an annular surface acting in the
15 opening direction may be subjected to the drain
pressure.
7. The control system in accordance with claim 5 or 6,
wherein the regulator has jacket recesses whereby the
connection between the spring chamber and a tank port
20 may be controlled open following a stroke of the
regulator.
8. The control system in accordance with claim 6 or 7,
25 wherein the valve body is a hollow piston and has a
nozzle bore, and the regulator has radial bores
whereby the spring chamber may be subjected to the
drain pressure.
- 30 9. The control system in accordance with any one of
claims 5 to 8, wherein the stroke of the valve body
is limited by a stop sleeve.
10. The control system in accordance with any one of
35 claims 5 to 9, comprising two nozzles in the jacket

5 of the regulator, whereby the spring chambers of the shut-off valves may be subjected to supply pressure and drain pressure, respectively, wherein the drain-side nozzle may be closed following an initial stroke of the regulator and/or by the valve body.

10 11. The control system in accordance with claim 8 and 10, wherein the nozzle and the nozzle bore are arranged in parallel.

15 12. The control system in accordance with any one of claims 5 to 11, wherein the valve body is guided in the regulator in a close fit, so that the spring chamber is sealed along this guidance.